

REMARKS/ARGUMENTS

The undersigned greatly appreciates the courtesies extended by Examiner Troy Chambers during the personal interview with Applicant representatives Bill Perciballi, Christine Smith, and Andrew Park on February 24, 2005. At the interview, Applicant submitted a proposed claim amendment incorporating certain areal density and performance limitations—namely, the areal density being not greater than 5.1 psf, and increased ballistic resistance capable of defeating impacts from one or more of the following threats (i) NATO 7.62 x 51 mm —80 Ball at 2,750+50 feet per second; (ii) Soviet 7.62 mm x 54R Ball Type LPS at 2,300+50 feet per second; and (iii) U.S. 5.56 mm M855 Ball at 3,250+50 feet per second.

Claims 1-20 in the case are pending. Claims 12 and 19 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirements. Claims 12 and 19 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-5, 8-10, 13-15, 17 and 20 have been rejected under 35 U.S.C. §102(b) as being anticipated by US Patent No. 5,635,288 issued to Park. Claims 11, 12, 18 and 19 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Park in view of mil-std disclosed by the Applicant.

With regard to the rejection under §112, Applicant submitted an industry definition of the term "areal density" to the examiner during the interview. Areal density refers to the weight of the armor composite divided by the protection area of the composite.

With regard to the art rejection, original base Claims 1 and 13 are amended herein, as indicated above, to incorporate the weight (areal density) limitation recited in dependant Claims 12 and 19, respectively, and to quantify the composite's increased ballistic performance capability.

Two critical aspects of the present hard armor composite in ballistic applications are *weight* and *performance*. In order to meet certain prescribed weight and performance

criteria, conventional teachings call for use of a *relatively heavy* fabric backing combined with a rigid facing. For example, one such prior art composite incorporates a fabric having a denier per filament ratio of 5.4. In the present composite, Applicant deviates from this conventional teaching by utilizing a *lightweight fabric* with a denier per filament ratio of *less than* 5.4. Applicant combines this lighter fabric backing with a rigid facing in a hard armor composite *having an areal density of no more than 5.1 psf*—yet offering *comparable to increased ballistic performance*. The resulting composite represents a substantial improvement over existing hard armor composites, and satisfies the industry's need for a lighter weight product with high ballistic performance capability.

Applicant's prior issued patent (Park '288) describes a hard armor composite which in certain embodiments incorporates a low denier per filament fabric. Applicant developed this composite construction many years ago without regard to the critical weight (areal density) and ballistic performance criteria outlined in present Claims 1 and 13. Indeed, the present invention is not simply the combination of a lightweight fabric and rigid facing as taught by Park '288. This teaching does not render obvious the construction of a hard armor composite having an areal density not greater than 5.1 psf, and ballistic performance capable of defeating impacts from one or more of the following threats (i) NATO 7.62 x 51 mm —80 Ball at 2,750+50 feet per second; (ii) Soviet 7.62 mm x 54R Ball Type LPS at 2,300+50 feet per second; and (iii) U.S. 5.56 mm M855 Ball at 3,250+50 feet per second. Indeed, Applicant submits that the relevant art actually *teaches away* from the claimed construction by incorporating a *high denier per filament fabric* to achieve the above ballistic performance in a composite with an areal density less than 5.1 psf.

For all these reasons discussed above, Applicant submits that all of the claims in the case are now in condition for allowance. Such action is therefore respectfully requested at an early date. If the Examiner believes that issues remain for discussion, he is invited to contact the undersigned at the telephone number indicated below.

Respectfully submitted,



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